



ALLEGRIA SOFTWARE, INC.

A Technical White Paper

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The Integration of ForReview with DOCS Open

Overview

In today's corporate world and global marketplace, the need to share, view, mark-up and manage office documents, images and technical drawings has become a growing challenge. To address this need, **Allegría Software, Inc.**, an innovator in image and documentation applications, has recently integrated ForReview™ for Windows, an enterprise-wide view and mark-up product, with DOCS Open™, a technical document management system designed specifically for the Microsoft Windows environment.

ForReview for DOCS Open is a separate integration module that seamlessly integrates ForReview with DOCS Open. This integration allows DOCS Open users to quickly and easily load documents directly into ForReview by utilizing ForReview's Graphical User Interfaces (GUI's), and DOCS Open's powerful search and select facilities. It should be emphasized that the integration module does not modify any of ForReview's underlying code. The module communicates between ForReview and DOCS Open by using ForReview's powerful Application Programming Interface (API), via Dynamic Data Exchange (DDE) and DOCS Open's Application Programming Interface.

The ForReview for DOCS Open module adds a **“DOCSOpen”** menu entry to the ForReview menu bar, allowing users to quickly access the DOCS Open database. The drop-down-menu from this entry allows the user to easily **Open Document (from DOCS Open), Load Markups, Unload Markups, and Check-in Markups/Document/Document&Markup** from ForReview to DOCS Open. A ForReview icon is added to the **“Applications”** group in the DOCS Open desktop.

ForReview always protects original documents by not allowing them to be edited in any way. Mark-up is always performed on user defined layers, and saved in a separate file called a “Mark-up” file (recognized by the “.mkp” extension). To accommodate these mark-up files in DOCS Open, a new application known as FRWMKP (for FoReviewW MarKuP) is defined. This is distinct from the base document type, which is registered as the application FOREVIEW. Using these defined applications, ForReview can automatically check in or out documents/mark-ups to or from the database.

ForReview automatically creates and maintains the relationship between mark-up files and their corresponding base documents in the DOCS Open database. When accessing a base document stored in DOCS Open, the user can also access all related mark-up files. Once the mark-up file(s) have been loaded, the user can make use of ForReview's extensive mark-up and layer management functionalities.

The ForReview for DOCS Open module essentially functions in the **“Markup”** mode of operation. In this mode, the user *can* modify existing mark-up files, or create new mark-up files. Any modified or newly created mark-up file will be saved to the database when the base document is closed.

Functional Architecture

ForReview for DOCS Open seamlessly integrates ForReview with DOCS Open. Note that ForReview for DOCS Open is a true integration, not just a “launch”. This means that when a document/mark-up from DOCS Open is opened in ForReview, ForReview will check it out of the DOCS Open database and display it in ForReview. Similarly, when the user is done with the document/mark-up, ForReview will check it back into the DOCS Open database.

To modify or create a mark-up: This can be done through ForReview for DOCS Open's **DOCSOpen** drop down menu. Once a document is selected (through the **Open Document** sub-menu item), the integration module in the form of a DLL is loaded into memory and connects to the DOCS Open database. This is accomplished by invoking the appropriate API functions provided by DOCS Open.

The file name of the selected document is retrieved from the DOCS Open database and it is then loaded in ForReview. Next, a list of mark-up files associated with the base document is retrieved from the database. This list is displayed in a **“Load Markup Files”** dialog box, from which the user can decide which files are to be loaded.

The user can now proceed to “mark-up” the base document using facilities provided in ForReview for DOCS Open. When finished with the mark-up, the user can either close the base document or use the “**Check-in Markup**” sub-menu option to check the mark-up into the DOCS Open database. “**Unload Markup**” sub-menu option also prompts to check-in the markup. The integration module is then notified of this action through callback functions set in ForReview for DOCS Open. The integration module either updates the database for an existing mark-up file, or creates a relationship between the base document and the new mark-up file and stores the new mark-up file in the database. In either case, the user is prompted with a DOCS Open-native dialog to change or set any relevant attribute of the mark-up file.

ForReview for DOCS Open keeps track of base documents (from the DOCS Open database) and their mark-ups by coding them as “external”. This is to help distinguish them from “native” mark-ups, or files and mark-ups that are not from the DOCS Open database.

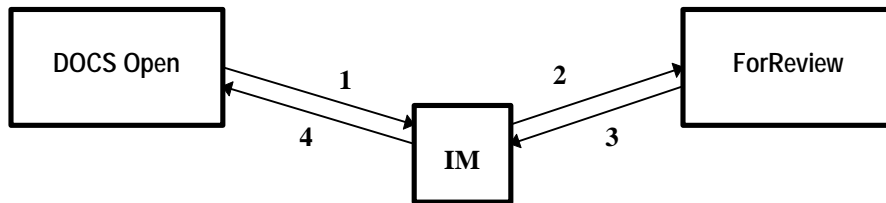


Fig.1

1: Document information retrieved from DOCS Open, and passed to the Integration Module (IM). 2: After processing the information, the integration module loads the base document and associated mark-ups in ForReview. 3: When the user is finished marking-up the base document, ForReview informs the integration module of the changes using callback functions that the integration module has set in ForReview. 4: The integration module stores the new or modified mark-ups in the DOCS Open database by calling the appropriate DOCS Open APIs.

Modules in Action

Following is a demonstration of the integration modules in action. ForReview for DOCS Open adds a **DOCSOpen** menu to ForReview to quickly access DOCS Open tasks. These entries include **Open Document**, **Load Markups**, **Unload Markups**, **Check-in**, **Help**, **Document**, and **Document&Markup** (Fig. 2).

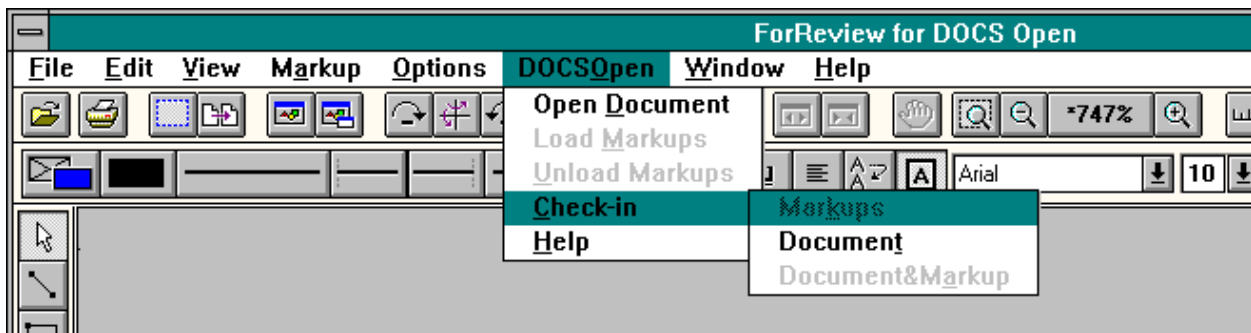


Fig. 2

To mark-up a base document: If the “Open Document” sub-menu option is chosen, a DOCS Open-native “Quick Retrieve” dialog is shown. The document (in this case FLAMINGO BIRD) should be highlighted before clicking on the **OK** button. (Fig. 3).

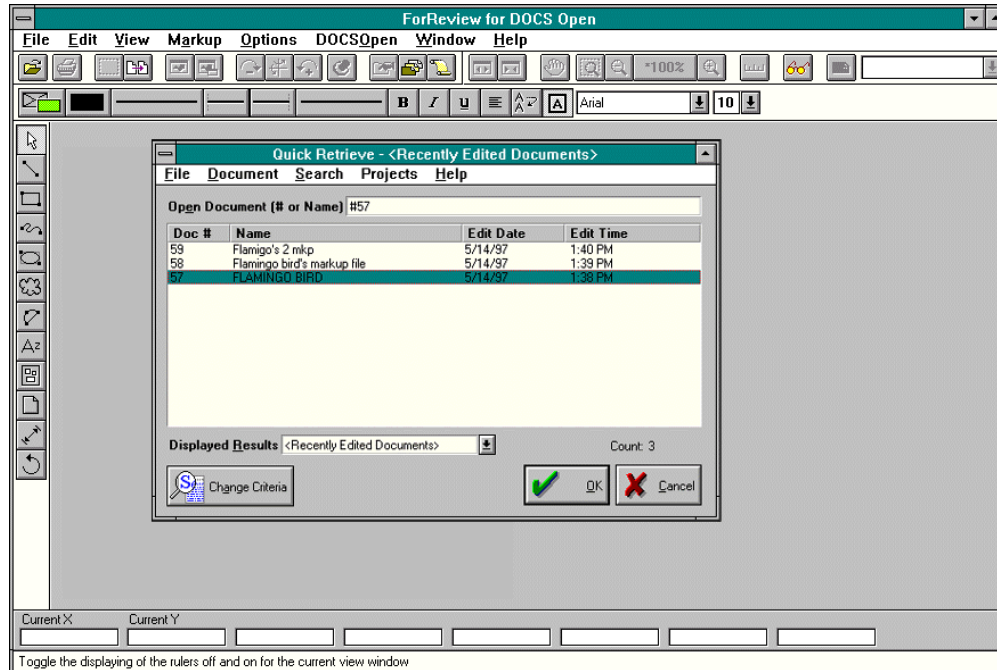


Fig. 3

Once the base document is loaded, the “Load Markup files” dialog appears (Fig. 4), allowing the user to decide which mark-up files, if any, are to be loaded. The selected mark-up files are then loaded in Foreview.

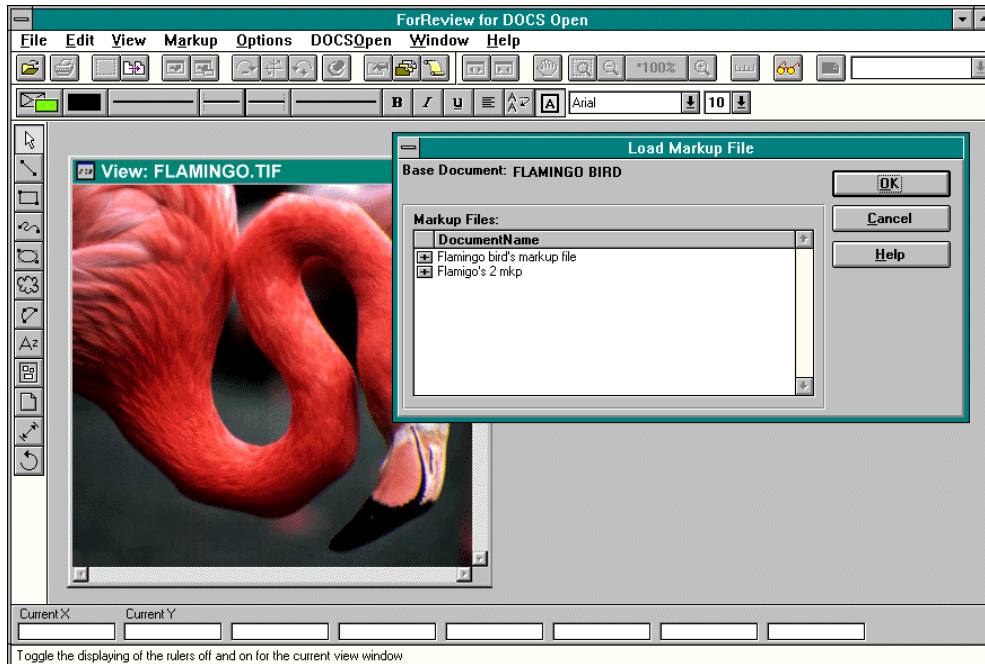


Fig. 4

The base document can be marked-up either by modifying an existing mark-up file or creating a new one. This can be registered back into the DOCS Open database by either closing the base document or by using the **Check-in Markups** menu option (Fig. 5). If a new one is created, upon completion, the user is prompted with a DOCS Open-native **“Document Profile-New Document”** dialog (Fig. 6), in which the user can set relevant attributes of the mark-up file before it is checked into the DOCS Open database. This completes the steps involved in a **“Markup”** operation.

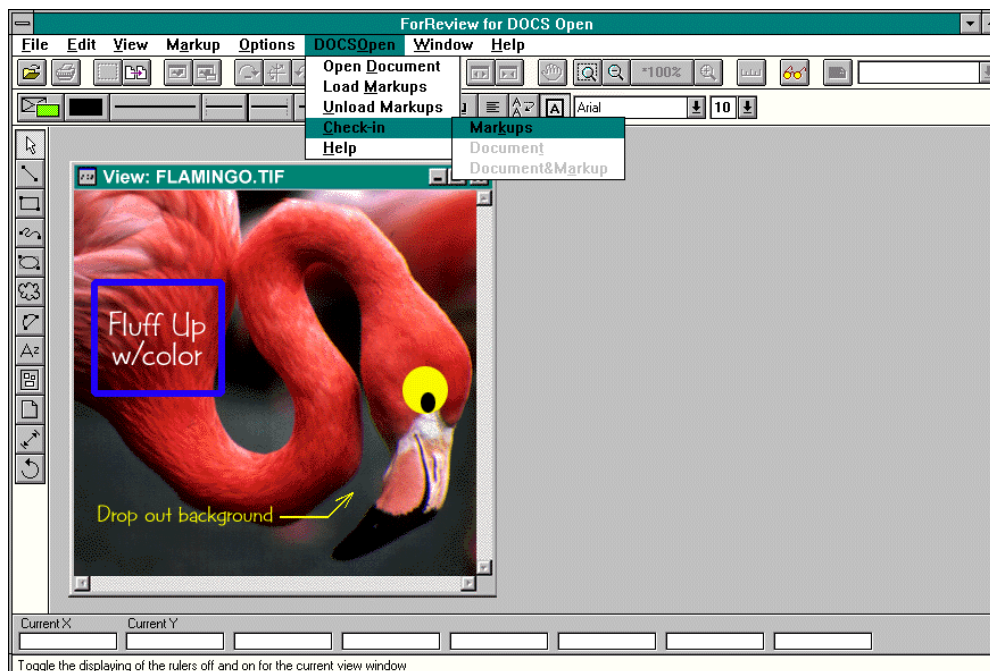


Fig. 5

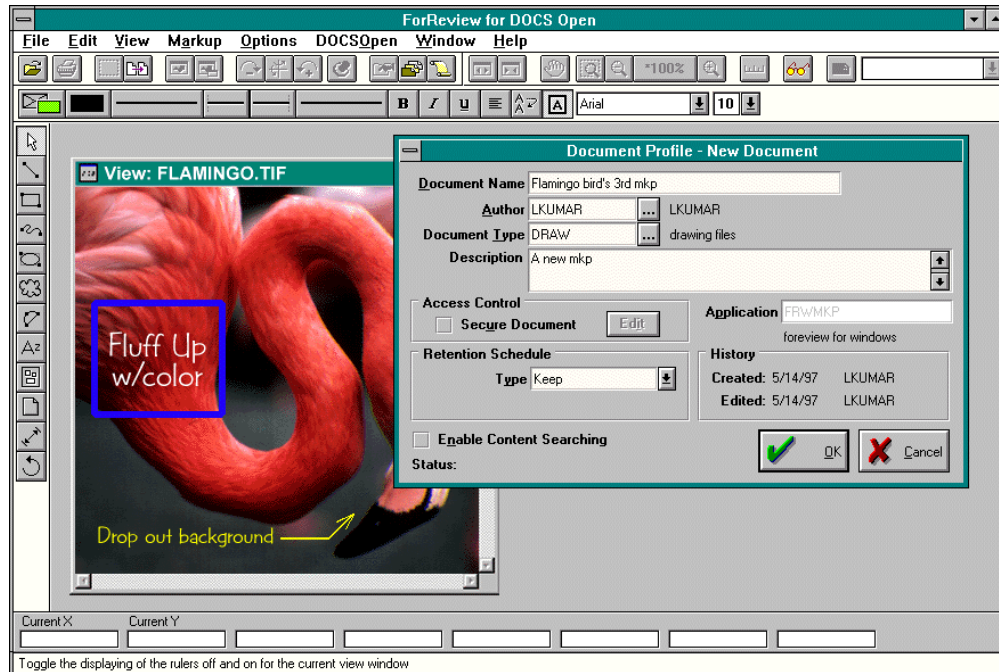


Fig. 6

In some cases, users might want to export a “native” document (and its mark-up files), to the DOCS Open database. This is done by first loading the drawing in ForReview and then clicking on the **Check-in Document/Document&Markups** sub-menu option (Fig. 7). A DOCS Open-native “Document Profile” dialog appears, in which the user can set relevant attributes of the document/mark-up file. This registers the drawing as a DOCS Open document.

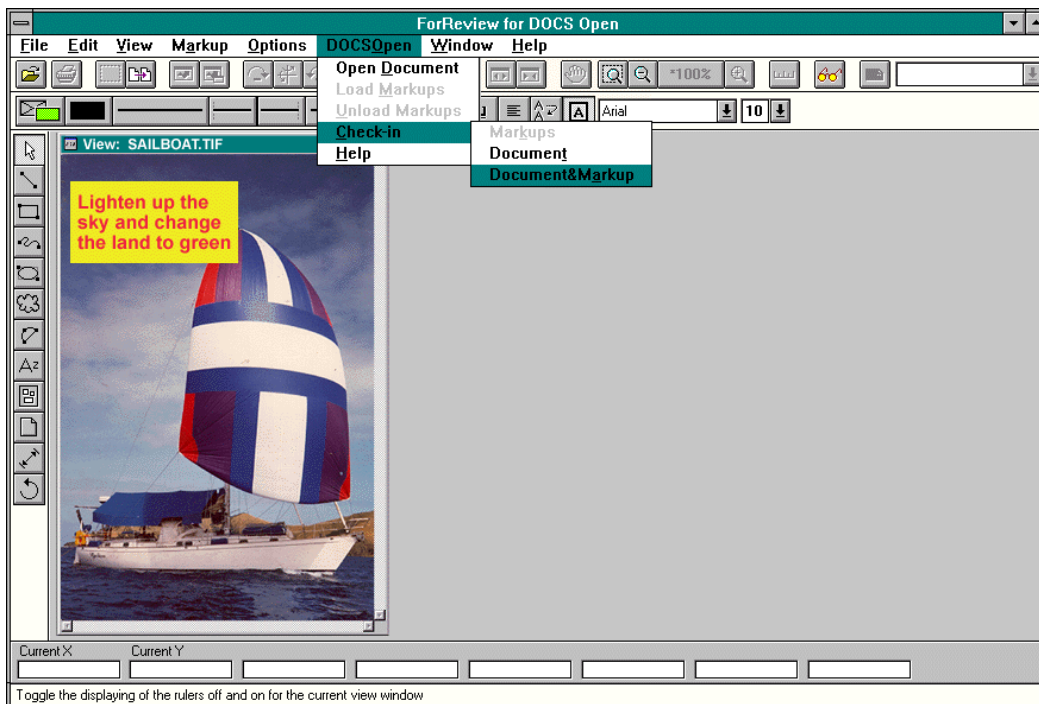


Fig. 7

Finally, the **Unload Markups** sub-menu option allows the user to easily unload any mark-up file(s), without having to close the base document.

Conclusion

In conclusion, we have demonstrated that ForReview, a state-of-the-art view and mark-up tool has been tightly integrated with DOCS Open, a Technical Document Management system. We believe this integration will meet the challenge of viewing and managing office documents, images and technical drawings in a demanding way. The integration can also serve as a template architecture to be followed by other integration work.